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WASHINGTON, DC 20007

EXAMINER

KING, FELICIA C

ART UNIT	PAPER NUMBER
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1794

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/590,507	Applicant(s) TERRAGNO ET AL.	
	Examiner FELICIA C. KING	Art Unit 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 November 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6,8-10,14-17 and 19-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6,8-10, 14-17, 19-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This Office Action is written in response to Applicants' response filed 11/3/09.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

1. **Claims 1- 6, 8-10, 14, 15, 17, 20-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bengtsson-Riveros et al. (US 2004/0115308) and in further view of Yang et al. (US 6,306,638) and Hayakawa et al. (Journal of Fermentation and Bioengineering Vol. 70 No. 6 p 401-408).**

Regarding Claims 1 and 2: Bengtsson-Riveros discloses liquid bacteria concentrates [pg. 2, para 0020; 0025] having viable bacteria at a concentration of 1.5×10^8 to 5×10^{11} cfu/ml [pg. 3, para 0031]; and further discloses where the bacteria are species selected from Lactobacillus, Bifidobacterium, Streptococcus, Lactococcus [pg. 3, 0033]; and also discloses the bacteria that can be concentrated via filtration methods known in that art [pg. 4, para 0051], but does not explicitly disclose where the bacteria are adapted and more resistant to various physiochemical stresses. However, Yang discloses adaptation of Bifidobacterium that are to be used in food products, where the bacteria have been adapted to have increased tolerance to gastric acid and oxygen [col. 9, lines 25-35; 41-46]. Further, Hayakawa discloses where Lactobacilli are grown in culture medium, and where a cross flow filtration system (tangential microfiltration) is used to wash and feed bacteria with fresh medium and to concentrate the bacteria in order to get high density cultivation of bacteria [pg 404-405 **Culture**].

At the time of the invention it would have been obvious to one of ordinary skill in the art having the teachings of Bengtsson-Riveros, Yang, and Hayakawa before him or her to modify the

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bacteria of Bengtsson-Riveros to include adapted bacteria because this would have allowed for the selection of bacteria having the ability to maintain its viability during periods of extended storage and to allow the bacteria to survive passage through the stomach (gastric acid) in order to provide its beneficial effect by maintaining healthy microflora in the intestines [col. 1, lines 24-32, col. 9, lines 25-46].

Further, it would have been obvious to modify the culture of bacteria in Bengtsson-Riveros to include a continuous culturing process where the bacteria are washed/fed fresh medium and concentrated using cross-flow filtration (tangential microfiltration) because it avoids plugging of the membrane as in traditional filtration systems [Hayakawa, pg 404 Abstract] and allows for the maintenance of preferred pH ranges because of the lack of lactic acid build up from the proliferating cells, and increases the amount of cells cultivated because an environment favorable for growth is maintained [Hayakawa, pg 404 Abstract].

Regarding Claims 3 and 4: Bengtsson-Riveros discloses liquid bacteria concentrates as discussed above and further discloses where the bacteria have a survival rate of above 80% even after 90 days of storage at 20°C with a food product that is children's breakfast cereal [pg. 7, Table 16]. The 80% figure was computed from the 90 day viable cfu count versus the starting cfu count [pg.7, Table 16]. Although Bengtsson-Riveros does not explicitly disclose the pH of the cereal being between 3 and 7, it is well known in the art that cereals have a pH between 5 and 6. Further Bengtsson-Riveros discloses in invitro testing of bacteria showing the ability to withstand gastric and bile acids [pg.2 para. 0027] which is within the pH range of the instant claims.

Further, claims 3 and 4 claim characteristics of the liquid bacterial concentrate of claim 1. Since the limitations of claim 1 have been met it would have been obvious to one of ordinary skill in

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the art that the adapted liquid bacterial cultures concentrated via tangential microfiltration as discussed above would have had the characteristics as disclosed in claims 3 and 4.

Regarding Claim 5: Bengtsson-Riveros discloses liquid bacteria concentrates as discussed above and further discloses where liquid bacteria concentrate can be added to beverages [pg.4, para 0049].

Regarding Claim 6: Bengtsson-Riveros discloses liquid bacteria concentrates as discussed above and further discloses where the liquid bacteria concentrate is viable up to 1 year [pg.4, para 0049].

Although Bengtsson-Riveros does not disclose the viability of the bacteria being between 4 to 6 weeks it does disclose that the bacteria are viable for up to 1 year (up to 52 weeks) thereby encompassing and surpassing the 4 to 6 week requirement of the claim, therefore, one having ordinary skill in the art at the time the invention was made would have considered the invention to have been obvious because the compositional proportions taught by Bengtsson-Riveros overlap the instantly claimed proportions and therefore are considered to establish a prima facie case of obviousness. *In re Malagari* 182 USPQ 549,553.

Regarding Claims 8 and 9: Bengtsson-Riveros discloses liquid bacteria concentrates as discussed above but does not explicitly disclose where the bacteria are adapted based upon parameters of the bacteria or the bacterial culture medium. However, Yang discloses where parameters for determining adaptation are based upon pH tolerance and oxygen tolerance of the bacteria [col.7, lines 40-44].

At the time of the invention, it would have been obvious to one of ordinary skill in the art having the teachings of Bengtsson-Riveros and Yang before him or her to measure the adaptation of

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the bacteria based on pH in order to determine whether the bacteria used in the food product would have be able to withstand an acidic environment in order for the bacteria to be useful as probiotics.

Regarding Claim 10: Bengtsson-Riveros discloses liquid bacteria concentrates as discussed above but does not disclose where the parameter of the culture medium is pH and the adaptation step is performed by reducing the pH by natural acidification. However, Yang discloses bacterial adaptation as discussed above but regulates the pH by adding acids to the medium. However, Hayakawa discloses bacteria that are maintained via cross-flow filtration in a particular culture medium where the pH is maintained based on the amount of glucose present in the culture medium and the amount of pH lowering lactic acid being produced [pg. 407, and Fig. 7].

At the time of the invention it would have been obvious to one of ordinary skill in the art having the teachings of Bengtsson-Riveros, Yang and Hayakawa before him or her to modify the method of adaptation as disclosed in Yang to include the adaptation using natural acidification as disclosed in Hayakawa in order to maintain the desired pH within a sterile environment so that the concentrated bacteria can be directly added to food products or directly packaged for later addition to food products.

Regarding Claim 14: Bengtsson-Riveros discloses liquid bacteria concentrates as discussed above but does not explicitly disclose where the pH of the concentrate is between 3 and 6. However, Yang discloses where the pH of medium for storage of bacteria concentrate is 6.2 to 6.5 [col. 9, lines 64-67; col. 10, lines 1-14] and further discloses where the pH of the culturing medium could be from 5 to 9 [col. 10, lines 46-50].

At the time of the invention, it would have been obvious to one of ordinary skill in the art having the teachings of Bengtsson-Riveros and Yang before him or her to include the concentrate at the pH as disclosed in Yang in order to maintain the bacteria in a slightly acidic environment to

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maintain a favorable environment for bacteria that have been adapted for a more acidic environment.

Further regarding the pH of the storage medium, although Yang does not disclose where the pH is between 3 and 6 as in the instant claim, the ranges disclosed are substantially close to that of the instant claims, one of ordinary skill would have expected compositions that are in such close proportions to those in prior art to be prima facie obvious and to have same properties. *Titanium Metals Corp.*, 227 USPQ 773 (CAFC 1985).

Further regarding the pH of the culture medium, although Yang does not disclose where the pH is between 3 and 6, one having ordinary skill in the art at the time the invention was made would have considered the invention to have been obvious because the compositional proportions taught by Yang overlap the instantly claimed proportions and therefore are considered to establish a prima facie case of obviousness. *In re Malagari* 182 USPQ 549,553.

Regarding Claim 15: Bengtsson-Riveros discloses liquid bacteria concentrates as discussed above and further discloses freezing them after packaging [pg. 2, para 0020, pg. 3, para 0041], where the instant claim recites preserving at temperature between -50°C and 4°C after packaging.

Although Bengtsson-Riveros, does not explicitly disclose preserving at temperatures between -50°C and 4°C after packaging, it is well known in the art that freezing occurs at temperatures from 0°C and below and that at such temperatures products that are subject to degradation are preserved, therefore the recitation of the freezing the packaged material satisfies the limitations of the claim.

Regarding Claims 17, 20, 21: Bengtsson-Riveros discloses liquid bacteria concentrates as discussed above and further discloses where the liquid concentrate is added to food additives and

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food products, and beverages such a cereal powders, powdered milk, chocolate, cereals, and beverages [pg. 4, para 0049].

Regarding Claim 22: Bengtsson-Riveros discloses liquid bacteria concentrates as discussed above and further discloses where the bacteria can be directly added to the consumable product and stored with the consumable product [pg. 2, para 0024]and further discloses adding probiotics to the consumable product before packaging the product [pg. 3, para 0040].

Regarding Claim 23: Bengtsson-Riveros discloses liquid bacteria concentrates as discussed above and further discloses where the bacteria can be applied to the consumable product by spraying [pg. 2 , para 0020]. Although Bengtsson-Riveros does not explicitly state the liquid concentrate is added by pumping, spraying onto the consumable product involves a pumping action and therefore satisfies the limitation of the claim.

Further, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a spraying device because it involves pumping action and is commonly used to distribute liquid products that will be applied directly to food and since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious engineering choice. *In re Lesbin* 125 USPQ 416

2. **Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bengtsson-Riveros et al. (US 2004/0115308), Yang et al. (US 6,306,638), and Hayakawa et al. (Journal of Fermentation and Bioengineering Vol. 70 No. 6 p 401-408) as applied to Claims 1 and 8 above, and in further view of SCK·CEN “Physiological Approach to Monitor Space and Stress Response in Bacteria” 2003.**

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Regarding Claim 12: Bengtsson-Riveros discloses liquid bacteria concentrates as discussed above but does not disclose where the parameter is bacteria size. However, SCK·CEN discloses that physiological stresses such as pH can affect the size of bacteria [col. 1, Objectives].

At the time of the invention it would have been obvious to one of ordinary skill in the art having the teachings of Bengtsson-Riveros, Yang, Hayakawa, and SCK·CEN before him or her to modify the method of adaptation as disclosed in Yang to include the adaptation using detection of bacteria shape as discussed in SCK·CEN as it has been disclosed that exposing bacteria to stress can cause a change in the size of the bacteria. Further this reaction (size reduction) to stress can be an indicator as to whether the bacteria would react favorably under desirable conditions.

3. **Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bengtsson-Riveros et al. (US 2004/0115308), Yang et al. (US 6,306,638), Hayakawa et al. (Journal of Fermentation and Bioengineering Vol. 70 No. 6 p 401-408), and SCK·CEN “Physiological Approach to Monitor Space and Stress Response in Bacteria” 2003 as applied to claim 12 above, and in further view of McDaniel (US 2004/0175407).**

Regarding Claim 13: Bengtsson-Riveros discloses liquid bacteria concentrates as discussed above but does not disclose where the lengths of the bacteria are between 0.1 to 10 μm . However, McDaniel discloses where species of Lactobacillus have lengths in the range of 1.0 -10 μm , species of Bifidobacterium have lengths in a range of 1.5 - 8.0 μm , species of Streptococcus have lengths in a range of 0.5 – 2.0 μm , species of Lactococcus lengths in the range of 0.5 -1.5 μm [pg 21, Table 3].

At the time of the invention it would have been obvious to one of ordinary skill in the art having the teachings of Bengtsson-Riveros, Yang, Hayakawa, SCK·CEN, and McDaniel before him or her to include bacteria having lengths of between 0.1 to 10 μm since these are physical

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characteristics exhibited by the preferred bacteria of the invention which are disclosed in Bengtsson-Riveros (Lactobacillus, Bifidobacterium, Streptococcus, Lactococcus [pg. 3, 0033]).

4. **Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bengtsson-Riveros et al. (US 2004/0115308) and Yang et al. (US 6,306,638) and Hayakawa et al. (Journal of Fermentation and Bioengineering Vol. 70 No. 6 p 401-408), as applied to claims 1 and 15 above and in further view of Rinfret et al. (US 3,228,838).**

Regarding Claim 16: Bengtsson-Riveros discloses liquid bacteria concentrates as discussed above and further discloses thawing them after freezing [pg. 2, para 0020, pg. 3, para 0041], but does not explicitly disclose reheating to a temperature between 25°C and 45°C. . However, Rinfret discloses preserving biological substances such as blood, bacteria, yeast, beverages from degradation by freezing and then thawing at 37 °C [col. 1, lines 16-20; col. 7, lines 13-37].

At the time of the invention, it would have been obvious to one of ordinary skill in the art having the teachings of Bengtsson-Riveros, Yang, Hayakawa and Rinfret before him or her to thaw the bacteria at 37 °C because it would bring the bacteria to a temperature that is favorable to maintaining their viability [Rinfret, col. 3, lines 16-19].

5. **Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bengtsson-Riveros et al. (US 2004/0115308), Yang et al. (US 6,306,638), and Hayakawa et al. (Journal of Fermentation and Bioengineering Vol. 70 No. 6 p 401-408), as applied to claim 1 above and in further view of Bense (US 2,364,049).**

Regarding Claim 19: Bengtsson-Riveros discloses liquid bacteria concentrates as discussed above and further discloses where the liquid concentrate is packaged in a hermetically sealed bag in order to preserve the product and to maintain the shelf life of the product [pg. 3, para 0040], therefore it can be inferred that given this description, the product is sterile because of the

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maintenance of shelf life and water activity and that the bag is flexible since flexibility is a physical characteristic of bags however these are not explicitly disclosed. However, Bensel discloses packaging perishable items by sterilizing them and loading into flexible heat sealable bags [pg. 2, lines 53-58].

At the time of the invention it would have been obvious to one of ordinary skill in the art having the teachings of Bengtsson-Riveros, Yang, Hayakawa and Bensel before him or her to package the liquid concentrate in flexible hermetically sealed, sterile packaging because it would prevent the degradation of the liquid concentrate (maintain the shelf life) and prevent contamination with undesirable pathogenic bacteria or bacteria that has not been adapted for use as probiotics.

Double Patenting

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claims 1, 2, 8-10, 12, 15, 16, 19 and 22 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 2, 6-9, 18, 19, 20, and 28 of copending Application No. 10/590658. Although the conflicting claims are not

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identical, they are not patentably distinct from each other because both are directed toward adapted liquid bacterial concentrates that are treated by tangential microfiltration; where the bacteria are Lactobaccilli, Bifidobacterium, Streptococcus, or Lactococcus; where the parameters are measured by the medium or bacteria; where the bacteria is added at the end of a production line and packaged in flexible hermetically sealed bags and can be reheated after packaging.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Response to Arguments

Applicants have overcome the objection to Claim 1.

Applicants have overcome the 112 2nd rejections to Claims 1, 4, 5, 7, 13, 22 by amending or cancelling the claims.

1. Applicant's arguments filed 11/3/09 have been fully considered but they are not persuasive. Applicant argues that the cited references do not address the problem of loss of bacterial viability during concentrating treatment where Applicant seems to argue that the concentration via tangential filtration avoids bacterial loss. A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim.

2. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., drying, avoiding loss of bacterial viability during concentrating treatment) are not recited in the rejected claims. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

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3. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

4. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the major references Bengtsson-Riveros, Yang, Hayakawa applied at least to the claim limitations of independent claim 1 involve growing, utilizing, increasing either the survivability or the concentration of beneficial bacteria and anticipating the incorporation of the bacteria in the food products due to their enhanced survivability and availability. Examiner sees no reason why the prior art references would not have been combined.

5. Further, Examiner disagrees with Applicants assertion that the Bengtsson-Riveros reference seeks to avoid concentrating and drying steps. Although, Bengtsson-Riveros discloses that concentrating may be unnecessary because enough probiotics are present in the biomass, Bengtsson-Riveros discloses that when higher concentrations, such as the concentrations recited in the instant claim, are desired, the biomass should be concentrated [0039].

6. Further regarding Applicants' assertion on pages 8 and 9 of the Remarks, that the Examiner has relied on probabilities or possibilities because the pH of a cereal product cannot be measured because it is dry and that it is not well known in the art that cereal has a pH of 5-6. First, cereals do

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have measurable pH levels which can be tested by adding to water to create a slurry and then testing to determine the pH by methods known in the art. Further, regarding the pH of cereals having a range of 5- 6, the following references disclose cereal products with pH levels within and around this range giving weight to such knowledge in the art: Mitchell et al. (US 4,876,096) discloses where the pH of rice is around 6.3 [col. 4, lines 65-66]; Fitchett et al. (US 5,912,031) discloses that the pH of wheat is around 6.2 [col. 3, lines 34-37]; Schmidt (US 4,208,440) discloses where the pH of a corn flour and water mixture is about 6 [col. 9, lines 7-15]; Rao et al. (US 3,790, 553) discloses a whole wheat kernel and water slurry having a pH of 5.7 to 6.7 [col.4, lines 69-74]. Regardless of whether, the prior art references disclosed do not explicitly state a pH of 5-6, they do give pH ranges within and around this range and further are within the 3 to 7 pH range as recited in claims 3 and 4.

However, as discussed above in the rejection, claims 3 and 4 are directed towards characteristics of the liquid bacterial concentrate in a food products and not the food product itself and further since the references show the shelf stability of a liquid concentrate at acidic pH levels at similar time and temperature, it would have been obvious that the liquid bacterial concentrate would have been stable in food products at the recited pH level/range.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to FELICIA C. KING whose telephone number is (571)270-3733. The examiner can normally be reached on Mon- Thu 7:30 a.m.- 5:00 p.m.; Fri 7:30 a.m. - 4:00 p.m. alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer McNeil can be reached on 571-272-1540. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/F. K./

Examiner, Art Unit 1794

/Jennifer McNeil/

Supervisory Patent Examiner, Art Unit 1794